OCR
RECOGNISING ACHIEVEMENT

F

Wednesday 6 November 2013 – Morning

GCSE MATHEMATICS A

A501/01 Unit A (Foundation Tier)

A516790313

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Scientific or graphical calculator
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour

A501 01

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

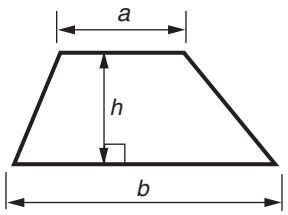
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

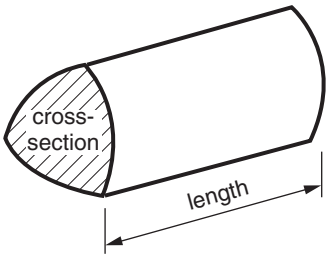
You are permitted to use a calculator for this paper

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = (area of cross-section) × length



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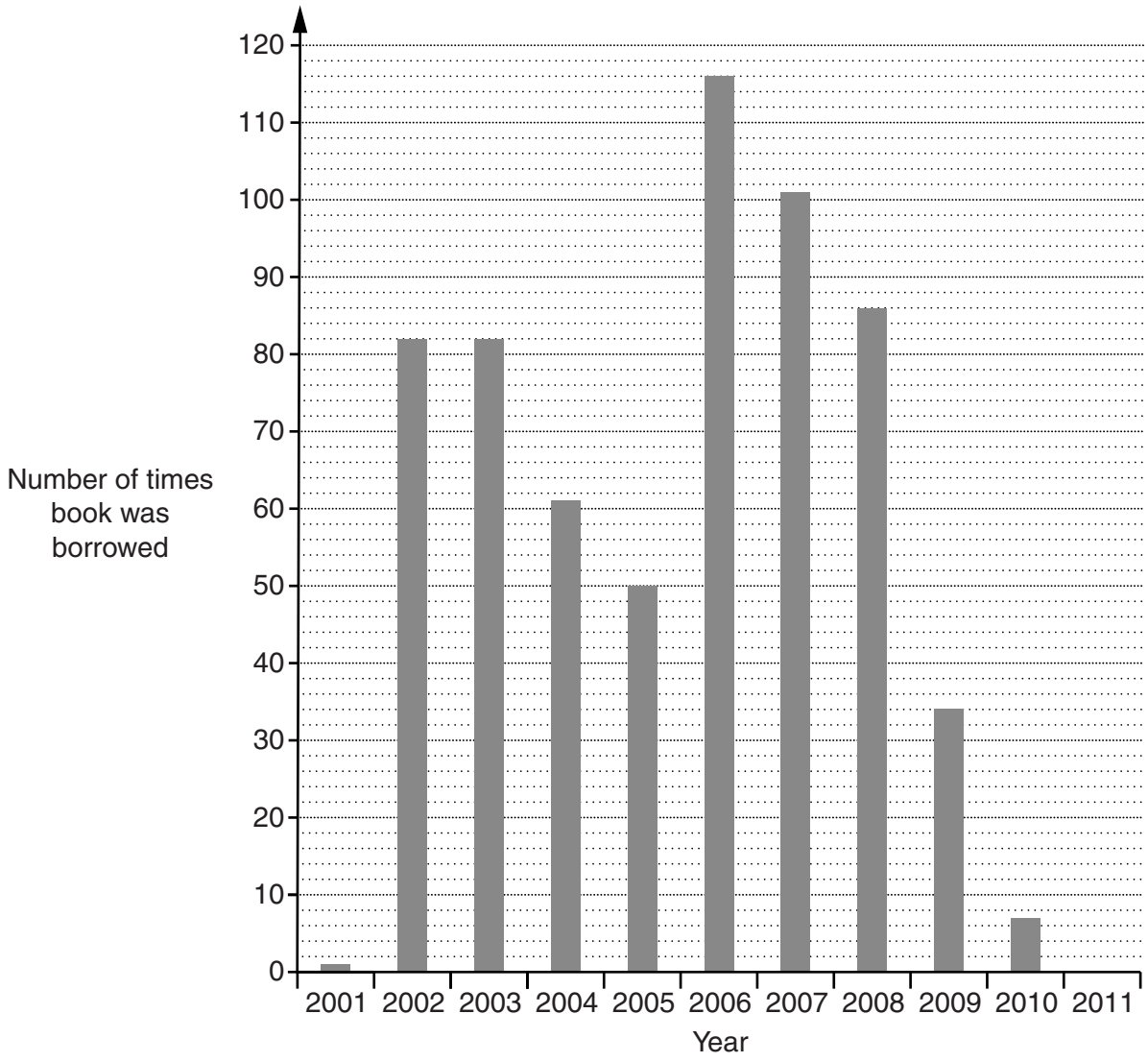
Answer **all** the questions.

1 This bar chart shows the number of times that copies of one maths textbook were borrowed from a group of libraries each year from 2001 to 2010.



(a) In which year was the book borrowed the **most** and how many times was this?

(a) In _____ and it was borrowed _____ times. **[2]**

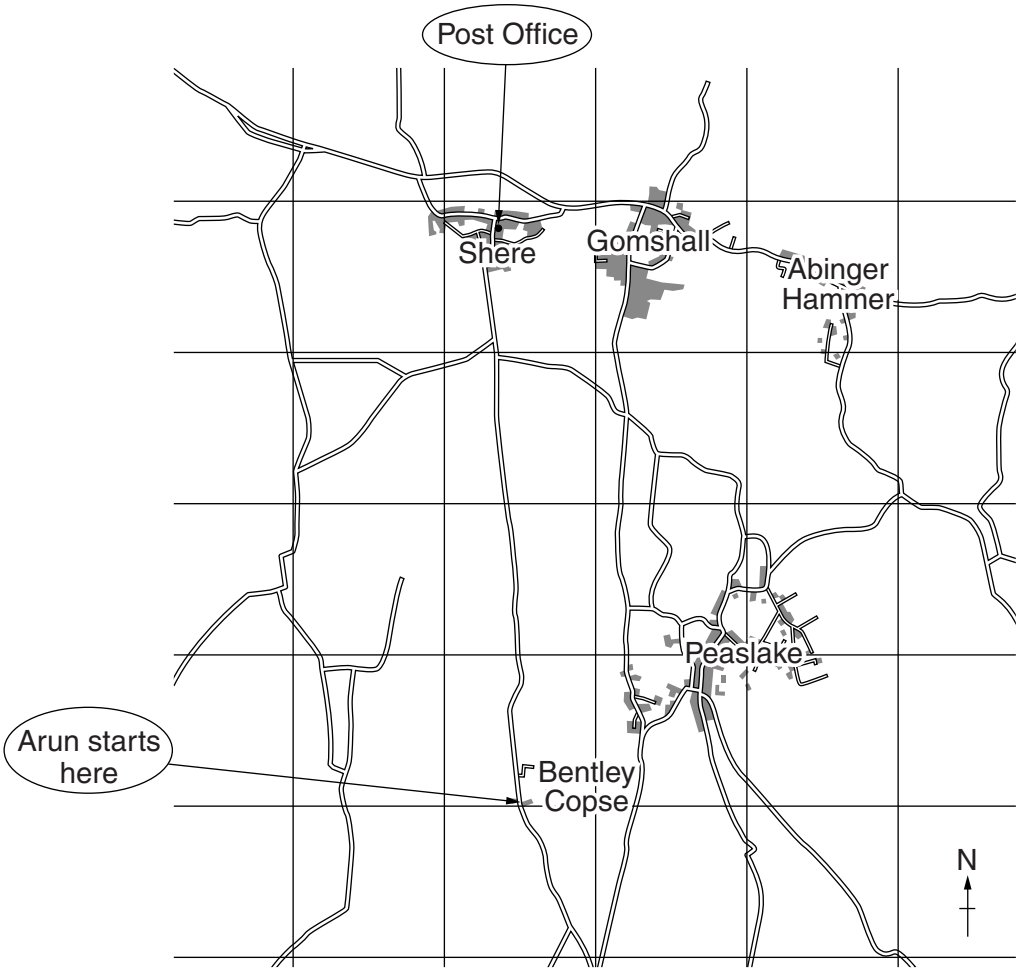
(b) How many **more** times was it borrowed in 2008 than in 2004?

(b) _____ **[2]**

(c) In 2011 it was borrowed 23 times.

Complete the chart by drawing the bar for 2011. **[1]**

2 This map shows part of Surrey.



(a) Arun comes out of Bentley Copse campsite and drives to the Post Office in Shere.

(i) In which compass direction does he drive?

(a)(i) _____ **[1]**

(ii) The scale of the map is 2 cm represents 1 km.

About how far does Arun drive to the Post Office?

(ii) _____ km **[2]**

(b) In the Post Office, Arun posts a parcel at a cost of £4.41 and he also buys 3 stamps at 58p each.

How much does he have to pay altogether?

(b) £ _____ **[2]**

(c) The distance from Shere to Guildford is 8 km.

What is this distance in miles?

(c) _____ miles **[1]**

(d) In 2011, the population of Guildford was 100 383.

(i) Write 100 383 correct to the nearest hundred.

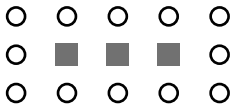
(d)(i) _____ **[1]**

(ii) Write 100 383 correct to one significant figure.

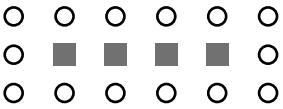
(ii) _____ **[1]**

3 Here are the first three patterns in a sequence.

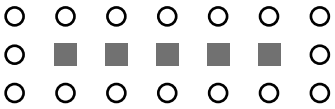
Pattern 1



Pattern 2



Pattern 3



(a) Complete the table.

Pattern number	1	2	3	4
Number of squares	3			
Number of circles	12			

[3]

(b) How many circles are there in Pattern 10?
Explain how you decide.

Pattern 10 has _____ circles because _____

_____ **[2]**

4 **(a)** Here are the integers from 25 to 30.

25 26 27 28 29 30

(i) Which of these numbers is divisible by 7?

(a)(i) _____ **[1]**

(ii) Which of these numbers has 13 as a factor?

(ii) _____ **[1]**

(iii) Which of these numbers is prime?

(iii) _____ **[1]**

(b) Write down a multiple of 25 which is between 120 and 140.

(b) _____ **[1]**

(c) Work out.

(i) $28^2 - 25 \times 30$

(c)(i) _____ **[1]**

(ii) $1 - \sqrt{25}$

(ii) _____ **[1]**

5 This table can be used to plan a walk along the Norfolk Coast Path.
It shows the times it takes to walk between some places along the path.

Walking times

Blakeney	Cley	Weybourne	Sheringham	Roman Camp
1h 01m				
3h 27m	2h 26m			
4h 38m	3h 37m	1h 11m		
5h 53m	4h 52m	2h 26m	1h 15m	

(a) (i) It takes 4 hours 38 minutes to walk from Blakeney to Sheringham.

How many minutes altogether are there in 4 hours 38 minutes?

(a)(i) _____ minutes **[1]**

(ii) The distance from Blakeney to Sheringham along the path is 11.6 miles.
It takes 4 hours 38 minutes to walk from Blakeney to Sheringham.

How many minutes are you expected to take to walk one mile on this path?
Give your answer correct to the nearest minute.

(ii) _____ minutes **[2]**

(b) Tim and Margaret start from Cley at 10 am.
They walk to Weybourne.
They stop at Weybourne to eat their packed lunch.
They then walk to Sheringham.

(i) Use the walking times to help you complete their plan for the day up to 'Arrive in Sheringham'.
Remember to allow them time for lunch.

Plan for the day

Leave Cley	10:00
Arrive in Weybourne	_____
Leave Weybourne after a lunch stop of _____ minutes	_____
Arrive in Sheringham	_____
Catch bus in Sheringham	_____
Arrive in Cley	_____

[4]

(ii) Tim and Margaret use the Coasthopper bus to return from Sheringham to Cley.
Here is the timetable for buses after 2 pm.

Sheringham	1425	1455	1525	1555	1625	1655	1755
Weybourne	1433	1503	1533	1603	1633	1703	1802
Salthouse	1440	1510	1540	1610	1640	1710	1809
Cley	1446	1516	1546	1616	1646	1716	1814
Blakeney	1449	1619	1549	1619	1649	1719	1817

Decide on a suitable bus for them to return to Cley and complete the rest of the plan for the day. **[2]**

6 **(a)** Write an expression for the total cost of 4 chocolate bars at c pence each.

(a) _____ pence **[1]**

(b) Simplify fully.

(i) $5a \times 3b$

(b)(i) _____ **[1]**

(ii) $4a - 2b + a + 5b$

(ii) _____ **[2]**

7 **(a)** Here is a list of ingredients for a Chocolate Courgette Cake.

Chocolate Courgette Cake
(serves 4 people)

200 g butter
300 g sugar
2 eggs
360 g plain flour
4 tablespoons cocoa
480 g grated courgettes

Debi wants to make a Chocolate Courgette Cake to serve 6 people.

Complete the list of ingredients she needs.

Chocolate Courgette Cake
(serves 6 people)

_____ g butter

_____ g sugar

_____ eggs

_____ g plain flour

_____ tablespoons cocoa

_____ g grated courgettes

[3]

(b) Debi compares four Chocolate Courgette Cake recipes.
The **mean** amount of courgettes they need is 435 g.
Three of the recipes need 450 g, 480 g and 340 g of courgettes.

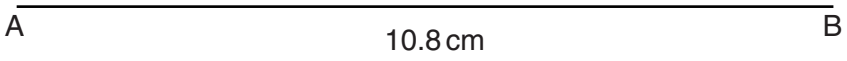
What amount of courgettes does the fourth recipe need?

(b) _____ g **[3]**

8 *In part (a) of this question use a pair of compasses and a ruler.*
Do not rub out your construction lines.

Triangle ABC has sides AB = 10.8 cm, BC = 8.4 cm and AC = 4.3 cm.

(a) Construct triangle ABC.
The side AB has been drawn for you.



[2]

(b) Measure angle B in the triangle.

(b) _____ ° **[1]**

(c) What type of angle is angle C in the triangle?
Circle the correct answer.

a right angle reflex acute obtuse **[1]**

9 Maja and Charlie are playing a 'think of a number' game.

(a) Maja says:

I think of a number.
I add 4.
I multiply the result by 6.
The answer is 72.

Find the number that Maja thought of.

(a) _____ **[2]**

(b) Charlie says:

I think of a number.
I multiply it by 6.
I add 4 to the result.
The answer is 39 more than the number I first thought of.

(i) Let n be the number that Charlie first thought of.

Complete this equation for Charlie's number game.

_____ = $n + 39$ **[1]**

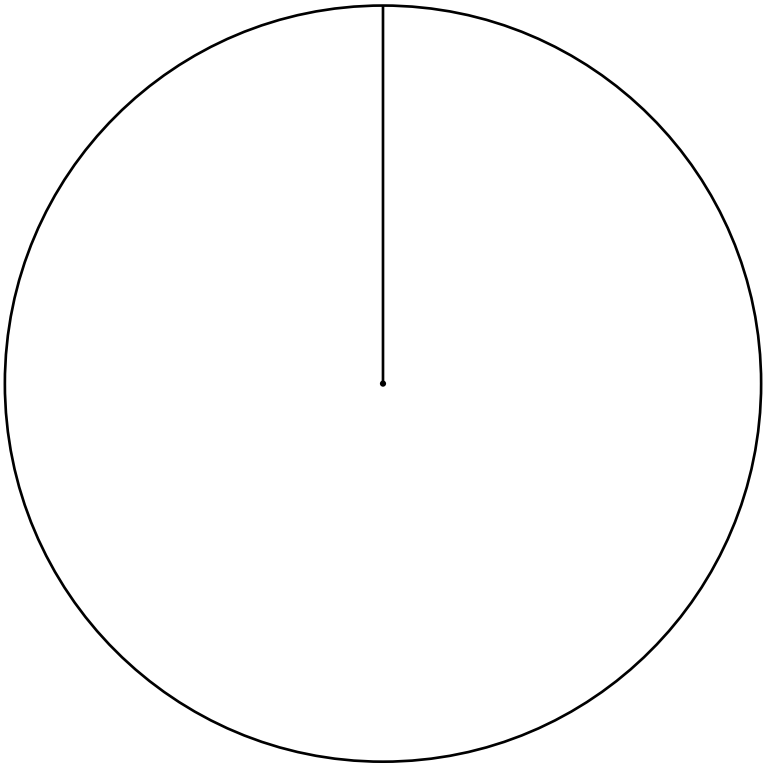
(ii) Solve the equation to find the number that Charlie first thought of.

(b)(ii) _____ **[3]**

10 Four people stand in an election to represent their class.
Here are the number of votes they each obtain.

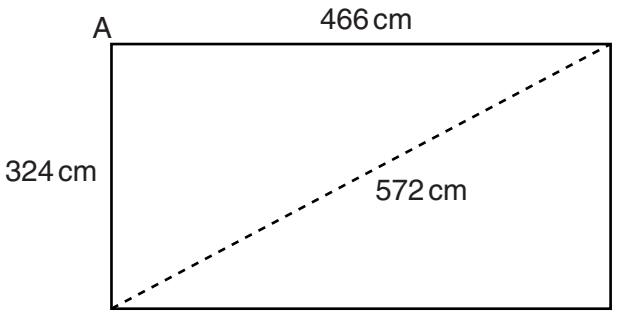
Name	Number of votes
Jessie	5
Anton	10
Vivek	8
Silpa	7
Total	30

Use the circle below to construct and label an accurate pie chart to represent these results.



[3]

11 Catherine is designing a new kitchen.
She wants to find out whether the walls meet at an angle of 90°.
She measures two walls and a diagonal across the kitchen floor.
This diagram of the floor shows her measurements.



Not to scale

(a) Use the wall measurements to calculate what the length of the diagonal should be if angle A = 90°.

(a) _____ cm **[3]**

(b) Use your result for the length of the diagonal to decide whether angle A is equal to 90°, less than 90° or more than 90°. Show how you decide.

Angle A is _____ 90° because _____

_____ **[1]**

END OF QUESTION PAPER

PLEASE DO NOT WRITE ON THIS PAGE